

Please cancel claims 62-69, 87, 88, 90-92, 94, 108-115, 126, 127, 129-131, 133, 144, 145, 147-149, 151, 162, 163, 165-167, 169, 180, 181, 183-185, 187, 197-204, 216-223, 232-238, 240-246, 252-259, 274, 275, 277-279, 281, 291, 292, 294-296, 298, 308, 309, 311-313, 315, 325-332, 344-351, 360, 361, 363-365, 367-369, 371-373, 375-377, 379-381, 383-385, 387-389, 391-405, 407-409, 411-413 and 415-423 without prejudice or disclaimer.

Please replace claims 35, 39, 53, 57, 74, 78, 89, 93, 99, 103, 120, 125, 128, 132, 138, 143, 146, 150, 156, 160, 164, 168, 174, 178, 182, 186, 192, 196, 209, 213, 225, 228, 247, 264, 268, 276, 280, 286, 290, 293, 297, 303, 307, 310, 314, 320, 324, 337, 341, 343, 356, 362, 366, 370, 374, 378, 382, 386, 390, 406, 410, 414 with the following rewritten claims.

12 ~~36~~. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 90% or more identical to a second amino acid sequence selected from the group consisting of:

wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D3 22 73. (Amended) The protein of claim 52<sup>21</sup> wherein said radiolabel is <sup>131</sup>I.

~~26~~ <sup>57</sup>. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;

(b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and

(c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284;

wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D5

~~35~~ <sup>74</sup>. (Amended) The protein of claim ~~78~~ <sup>34</sup> wherein said radiolabel is <sup>131</sup>I.

~~39~~ <sup>78</sup>. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;

(b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and

(c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284; and

wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D7

~~47~~ <sup>89</sup>. (Amended) The protein of claim ~~78~~ <sup>39</sup> wherein the protein stimulates B lymphocyte proliferation.

D8

~~48~~ <sup>98</sup>. (Amended) The protein of claim ~~78~~ <sup>39</sup> wherein the protein stimulates B lymphocyte differentiation.

D9 53 ~~99~~ (Amended) The protein of claim ~~98~~<sup>52</sup> wherein said radiolabel is <sup>131</sup>I.

D10 57 ~~103~~ (Twice Amended) An isolated protein comprising the amino acid sequence of amino acid residues 191-285 of SEQ ID NO:2, wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D11 66 ~~120~~ (Amended) The protein of claim ~~119~~<sup>65</sup> wherein radiolabel is <sup>131</sup>I.

D12 71 ~~125~~ (Amended) The protein of claim ~~124~~<sup>70</sup> wherein said protein specifically binds an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D13 72 ~~128~~ (Amended) The protein of claim ~~124~~<sup>70</sup> wherein the protein stimulates B lymphocyte proliferation.

D14 73 ~~132~~ (Amended) The protein of claim ~~124~~<sup>70</sup> wherein the protein stimulates B lymphocyte differentiation.

D15 78 ~~138~~ (Amended) The protein of claim ~~137~~<sup>77</sup> wherein said radiolabel is <sup>131</sup>I.

D16 83 ~~143~~ (Amended) The protein of claim ~~142~~<sup>82</sup> wherein said protein specifically binds an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D17 84 ~~146~~ (Amended) The protein of claim ~~142~~<sup>82</sup> wherein the protein stimulates B lymphocyte proliferation.

D18 85 ~~150~~ (Amended) The protein of claim ~~142~~<sup>82</sup> wherein the protein stimulates B lymphocyte differentiation.

D19 90 ~~156~~ (Amended) The protein of claim ~~155~~<sup>89</sup> wherein said radiolabel is <sup>131</sup>I.

D20 <sup>94</sup> 1~~60~~. (Twice Amended) An isolated protein consisting of an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D21 <sup>94</sup> 1~~64~~. (Amended) The protein of claim 1~~60~~<sup>94</sup> wherein the protein stimulates B lymphocyte proliferation.

D22 <sup>94</sup> 1~~68~~. (Amended) The protein of claim 1~~60~~<sup>94</sup> wherein the protein stimulates B lymphocyte differentiation.

D23 <sup>101</sup> 1~~74~~. (Amended) The protein of claim 1~~73~~<sup>101</sup> wherein said radiolabel is <sup>131</sup>I.

D24 <sup>106</sup> 1~~78~~. (Twice Amended) An isolated protein comprising an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D25 <sup>106</sup> 1~~82~~. (Amended) The protein of claim 1~~78~~<sup>106</sup> wherein the protein stimulates B lymphocyte proliferation.

D26 <sup>106</sup> 1~~86~~. (Amended) The protein of claim 1~~78~~<sup>106</sup> wherein the protein stimulates B lymphocyte differentiation.

D27 <sup>113</sup> 1~~92~~. (Amended) The protein of claim 1~~81~~<sup>113</sup> wherein said radiolabel is <sup>131</sup>I.

D28 <sup>118</sup> 1~~96~~. (Twice Amended) An isolated protein comprising a fragment of the polypeptide of SEQ ID NO:2, wherein said fragment can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D29 <sup>122</sup> 1~~23~~ 2~~09~~. (Amended) The protein of claim 2~~08~~<sup>122</sup> wherein said radiolabel is <sup>131</sup>I.

D30

~~127~~ <sup>127</sup> 213. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2 wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D31

~~130~~ <sup>129</sup> 225. (Twice Amended) The protein of claim ~~430~~ wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

D32

~~133~~ <sup>132</sup> 228. (Amended) The protein of claim ~~227~~ wherein said radiolabel is <sup>131</sup>I.

D33

~~137~~ <sup>137</sup> 247. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D34

~~146~~ <sup>145</sup> 264. (Amended) The protein of claim ~~263~~ wherein said radiolabel is <sup>131</sup>I.

~~150~~ ~~268~~. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

D35 (a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D36 ~~156~~ ~~276~~. (Amended) The protein of claim ~~268~~<sup>150</sup> wherein the protein stimulates B lymphocyte proliferation.

D37 ~~157~~ ~~280~~. (Amended) The protein of claim ~~268~~<sup>150</sup> wherein the protein stimulates B lymphocyte differentiation.

D38 ~~162~~ ~~286~~. (Amended) The protein of claim ~~285~~<sup>161</sup> wherein said radiolabel is <sup>131</sup>I.

D39

~~166~~ 290. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D40

~~167~~ 293. (Amended) The protein of claim ~~290~~<sup>165</sup> wherein the protein stimulates B lymphocyte proliferation.

D41

~~168~~ 297. (Amended) The protein of claim ~~290~~<sup>165</sup> wherein the protein stimulates B lymphocyte differentiation.

D42

~~173~~ 303. (Amended) The protein of claim ~~302~~<sup>172</sup> wherein said radiolabel is <sup>131</sup>I.

D43

~~177~~ 307. (Twice Amended) An isolated protein consisting of a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

D44

~~178~~ 310. (Amended) The protein of claim ~~307~~<sup>177</sup> wherein the protein stimulates B lymphocyte proliferation.

D45

~~179~~ 314. (Amended) The protein of claim ~~307~~<sup>177</sup> wherein the protein stimulates B lymphocyte differentiation.

D46

~~184~~ 320. (Amended) The protein of claim ~~319~~<sup>183</sup> wherein said radiolabel is <sup>131</sup>I.

D47

<sup>188</sup> ~~324~~. (Twice Amended) An isolated protein comprising a fragment of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said fragment can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D48

<sup>192</sup> ~~317~~. (Amended) The protein of claim <sup>192</sup>~~316~~ wherein said radiolabel is <sup>131</sup>I.

D49

<sup>197</sup> ~~341~~. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768 wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

D50

<sup>198</sup> ~~343~~. (Amended) The protein of claim <sup>197</sup>~~341~~ which comprises an amino acid sequence of at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768.

D51

<sup>203</sup> ~~356~~. (Amended) The protein of claim <sup>202</sup>~~355~~ wherein said radiolabel is <sup>131</sup>I.

D52

<sup>207</sup> ~~362~~. (Amended) The protein of claim <sup>12</sup>~~39~~ wherein the protein stimulates B lymphocyte proliferation.

D53

<sup>208</sup> ~~366~~. (Amended) The protein of claim <sup>12</sup>~~39~~ wherein the protein stimulates B lymphocyte differentiation.

D54

<sup>209</sup> ~~370~~. (Amended) The protein of claim <sup>12</sup>~~39~~ wherein the protein stimulates B lymphocyte survival.

D55

<sup>210</sup> ~~374~~. (Amended) The protein of claim <sup>70</sup>~~124~~ wherein the protein stimulates B lymphocyte survival.

D56

<sup>211</sup> ~~378~~. (Amended) The protein of claim <sup>39</sup>~~78~~ wherein the protein stimulates B lymphocyte survival.



D57 212 382. (Amended) The protein of claim 142<sup>82</sup> wherein the protein stimulates B lymphocyte survival.

D58 213 386. (Amended) The protein of claim 160<sup>94</sup> wherein the protein stimulates B lymphocyte survival.

D59 214 390. (Amended) The protein of claim 178<sup>106</sup> wherein the protein stimulates B lymphocyte survival.

D60 215 406. (Amended) The protein of claim 268<sup>150</sup> wherein the protein stimulates B lymphocyte survival.

D61 216 410. (Amended) The protein of claim 290<sup>145</sup> wherein the protein stimulates B lymphocyte survival.

D62 217 414. (Amended) The protein of claim 307<sup>179</sup> wherein the protein stimulates B lymphocyte survival.

D63 129 430. (New) The protein of claim 213<sup>127</sup> wherein the protein also comprises a heterologous amino acid sequence.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Yu et al.

Art Unit: 1647

Application No.: 09/507,968

Examiner: B. Bunner

Filed: February 22, 2000

Atty Docket No.: PF343P3

For: **Neutrokin-alpha and Neutrokin-alpha  
Splice Variant**

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**CLEAN VERSION OF THE ENTIRE SET OF PENDING CLAIMS**

**UNDER 37 C.F.R. § 1.121(c)(3)**

1-25. (Cancelled)

26. (Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of amino acid residues 1 to 285 of SEQ ID NO:2; and
- (b) the amino acid sequence of amino acid residues 73 to 285 of SEQ ID NO:2.

27. The protein of claim 26 which comprises amino acid sequence (a).

28. The protein of claim 26 which comprises amino acid sequence (b)

29-30. (Cancelled)

31. The protein of claim 26 wherein the protein also comprises a heterologous amino acid sequence.

32. The protein of claim 31 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

33. The protein of claim 26 wherein said protein is labeled.
34. The protein of claim 33 wherein said label is a radiolabel selected from the group consisting of:
- (a)  $^{131}\text{I}$ ;
  - (b)  $^{125}\text{I}$ ;
  - (c)  $^{121}\text{I}$ ;
  - (d)  $^{112}\text{In}$ ; and
  - (e)  $^{99\text{m}}\text{Tc}$ .
35. (Amended) The protein of claim 34 wherein said radiolabel is  $^{131}\text{I}$ .
36. The protein of claim 26 bound to a solid support.
37. A composition comprising the protein of claim 26 and a carrier.
38. A protein produced by a method comprising:
- (a) expressing the protein of claim 26 by a cell; and
  - (b) recovering the protein.
39. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 90% or more identical to a second amino acid sequence selected from the group consisting of:
- (a) the amino acid sequence of amino acid residues 1 to 285 of SEQ ID NO:2; and
  - (b) the amino acid sequence of amino acid residues 73 to 285 of SEQ ID NO:2;
- wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.
40. The protein of claim 39 wherein the second amino acid sequence is (a).
41. The protein of claim 39 wherein the second amino acid sequence is (b).

42-43. (Cancelled)

44. The protein of claim 39 wherein said first amino acid sequence is 95% or more identical to said second amino acid sequence.

45. The protein of claim 44 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 1 to 285 of SEQ ID NO:2.

46-47. (Cancelled)

48. The protein of claim 44 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 73 to 285 of SEQ ID NO:2.

49. The protein of claim 39 wherein the protein also comprises a heterologous amino acid sequence.

50. The protein of claim 49 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

51. The protein of claim 39 wherein said protein is labeled.

52. The protein of claim 51 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

53. (Amended) The protein of claim 52 wherein said radiolabel is  $^{131}\text{I}$ .

54. The protein of claim 39 bound to a solid support.

55. A composition comprising the protein of claim 39 and a carrier.

56. A protein produced by a method comprising:
- (a) expressing the protein of claim 39 by a cell; and
  - (b) recovering the protein.

57. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

- (a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;
- (b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and
- (c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284;

wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

58. The protein of claim 57 which comprises amino acid sequence (a).

59. The protein of claim 57 which comprises amino acid sequence (b).

60. The protein of claim 57 which comprises amino acid sequence (c).

61. The protein of claim 57 which comprises the amino acid sequence of amino acid residues 71-285 of SEQ ID NO:2.

62-69. (Cancelled)

70. The protein of claim 57 wherein the protein also comprises a heterologous amino acid sequence.

71. The protein of claim 70 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

72. The protein of claim 57 wherein said protein is labeled.

73. The protein of claim 72 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

74. (Amended) The protein of claim 73 wherein said radiolabel is  $^{131}\text{I}$ .

75. The protein of claim 57 bound to a solid support.

76. A composition comprising the protein of claim 57 and a carrier.

77. A protein produced by a method comprising:

- (a) expressing the protein of claim 57 by a cell; and
- (b) recovering the protein.

78. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of amino acid residues n to 285 of SEQ ID NO:2, where n is an integer in the range of 2-190;

(b) the amino acid sequence of amino acid residues 1 to m of SEQ ID NO:2, where m is an integer in the range of 274-284; and

(c) the amino acid sequence of amino acid residues n to m of SEQ ID NO:2, where n is an integer in the range of 2-190 and m is an integer in the range of 274-284; and

wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

79. The protein of claim 78 wherein the second amino acid sequence is (a).
80. The protein of claim 78 wherein the second amino acid sequence is (b).
81. The protein of claim 78 wherein the second amino acid sequence is (c).
82. (Cancelled)
83. The protein of claim 79 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 168-285 of SEQ ID NO:2.
84. The protein of claim 79 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 112-285 of SEQ ID NO:2.
85. The protein of claim 79 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 81-285 of SEQ ID NO:2.
86. The protein of claim 79 wherein the second amino acid sequence is the amino acid sequence of amino acid residues 71-285 of SEQ ID NO:2.
- 87-88. (Cancelled)
89. (Amended) The protein of claim 78 wherein the protein stimulates B lymphocyte proliferation.
- 90-92. (Cancelled)
93. (Amended) The protein of claim 78 wherein the protein stimulates B lymphocyte differentiation.
94. (Cancelled)
95. The protein of claim 78 wherein the protein also comprises a heterologous amino acid sequence.

96. The protein of claim 95 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

97. The protein of claim 78 wherein said protein is labeled.

98. The protein of claim 97 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

99. (Amended) The protein of claim 98 wherein said radiolabel is  $^{131}\text{I}$ .

100. The protein of claim 78 bound to a solid support.

101. A composition comprising the protein of claim 78 and a carrier.

102. A protein produced by a method comprising:

- (a) expressing the protein of claim 78 by a cell; and
- (b) recovering the protein.

103. (Twice Amended) An isolated protein comprising the amino acid sequence of amino acid residues 191-285 of SEQ ID NO:2, wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

104. The isolated protein of claim 103 which comprises the amino acid sequence of amino acid residues 168-285 of SEQ ID NO:2.

105. The isolated protein of claim 104 which comprises the amino acid sequence of amino acid residues 112-285 of SEQ ID NO:2.



106. The isolated protein of claim 105 which comprises the amino acid sequence of amino acid residues 81-285 of SEQ ID NO:2.

107. The isolated protein of claim 106 which comprises the amino acid sequence of amino acid residues 71-285 of SEQ ID NO:2.

108-115. (Cancelled)

116. The protein of claim 103 wherein the protein also comprises a heterologous amino acid sequence.

117. The protein of claim 116 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

118. The protein of claim 103 wherein said protein is labeled.

119. The protein of claim 118 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

120. (Amended) The protein of claim 119 wherein said radiolabel is  $^{131}\text{I}$ .

121. The protein of claim 103 bound to a solid support.

122. A composition comprising the protein of claim 103 and a carrier.

123. A protein produced by a method comprising:

- (a) expressing the protein of claim 103 by a cell; and
- (b) recovering the protein.

124. An isolated protein consisting of the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2.

125. (Amended) The protein of claim 124 wherein said protein specifically binds an antibody that specifically binds the polypeptide of SEQ ID NO:2.

126-127. (Cancelled)

128. (Amended) The protein of claim 124 wherein the protein stimulates B lymphocyte proliferation.

129-131. (Cancelled)

132. (Amended) The protein of claim 124 wherein the protein stimulates B lymphocyte differentiation.

133. (Cancelled)

134. The protein of claim 124 fused to a heterologous amino acid sequence.

135. The protein of claim 134 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

136. The protein of claim 124 wherein said protein is labeled.

137. The protein of claim 136 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

138. (Amended) The protein of claim 137 wherein said radiolabel is  $^{131}\text{I}$ .

139. The protein of claim 124 bound to a solid support.
140. A composition comprising the protein of claim 124 and a carrier.
141. A protein produced by a method comprising:
- (a) expressing the protein of claim 124 by a cell; and
  - (b) recovering the protein.
142. An isolated protein comprising the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2.
143. (Amended) The protein of claim 142 wherein said protein specifically binds an antibody that specifically binds the polypeptide of SEQ ID NO:2.
- 144-145. (Cancelled)
146. (Amended) The protein of claim 142 wherein the protein stimulates B lymphocyte proliferation.
- 147-149. (Cancelled)
150. (Amended) The protein of claim 142 wherein the protein stimulates B lymphocyte differentiation.
151. (Cancelled)
152. The protein of claim 142 wherein the protein also comprises a heterologous amino acid sequence.
153. The protein of claim 152 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.
154. The protein of claim 142 wherein said protein is labeled.

155. The protein of claim 154 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

156. (Amended) The protein of claim 155 wherein said radiolabel is  $^{131}\text{I}$ .

157. The protein of claim 142 bound to a solid support.

158. A composition comprising the protein of claim 142 and a carrier.

159. A protein produced by a method comprising:

- (a) expressing the protein of claim 142 by a cell; and
- (b) recovering the protein.

160. (Twice Amended) An isolated protein consisting of an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

161. The isolated protein of claim 160 that is 95% or more identical to an amino acid sequence consisting of amino acid residues 134-285 of SEQ ID NO:2.

162-163. (Cancelled)

164. (Amended) The protein of claim 160 wherein the protein stimulates B lymphocyte proliferation.

165-167. (Cancelled)

168. (Amended) The protein of claim 160 wherein the protein stimulates B lymphocyte differentiation.

169. (Cancelled)

170. The protein of claim 160 wherein the protein is fused to a heterologous amino acid sequence.

171. The protein of claim 170 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

172. The protein of claim 160 wherein said protein is labeled.

173. The protein of claim 172 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

174. (Amended) The protein of claim 173 wherein said radiolabel is  $^{131}\text{I}$ .

175. The protein of claim 160 bound to a solid support.

176. A composition comprising the protein of claim 160 and a carrier.

177. A protein produced by a method comprising:

- (a) expressing the protein of claim 160 by a cell; and
- (b) recovering the protein.

178. (Twice Amended) An isolated protein comprising an amino acid sequence that is 90% or more identical to the amino acid sequence of amino acid residues 134-285 of SEQ ID NO:2, wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

179. The isolated protein of claim 178 that is 95% or more identical to an amino acid sequence comprising amino acid residues 134-285 of SEQ ID NO:2.

180-181. (Cancelled)

182. (Amended) The protein of claim 178 wherein the protein stimulates B lymphocyte proliferation.

183-185. (Cancelled)

186. (Amended) The protein of claim 178 wherein the protein stimulates B lymphocyte differentiation.

187. (Cancelled)

188. The protein of claim 178 wherein the protein also comprises a heterologous amino acid sequence.

189. The protein of claim 188 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

190. The protein of claim 178 wherein said protein is labeled.

191. The protein of claim 190 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

192. (Amended) The protein of claim 191 wherein said radiolabel is  $^{131}\text{I}$ .

193. The protein of claim 178 bound to a solid support.

194. A composition comprising the protein of claim 178 and a carrier.

195. A protein produced by a method comprising:

- (a) expressing the protein of claim 178 by a cell; and
- (b) recovering the protein.

196. (Twice Amended) An isolated protein comprising a fragment of the polypeptide of SEQ ID NO:2, wherein said fragment can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

197-204. (Cancelled)

205. The protein of claim 196 wherein the protein also comprises a heterologous amino acid sequence.

206. The protein of claim 205 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

207. The protein of claim 196 wherein said protein is labeled.

208. The protein of claim 207 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

209. (Amended) The protein of claim 208 wherein said radiolabel is  $^{131}\text{I}$ .

210. The protein of claim 196 bound to a solid support.

211. A composition comprising the protein of claim 196 and a carrier.

212. A protein produced by a method comprising:

- (a) expressing the protein of claim 196 by a cell; and
- (b) recovering the protein.

213. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of SEQ ID NO:2 wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

214. (Cancelled)

215. The protein of claim 213 which comprises an amino acid sequence of at least 50 contiguous amino acid residues of SEQ ID NO:2.

216-224. (Cancelled)

225. (Twice Amended) The protein of claim 430 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.



226. The protein of claim 213 wherein said protein is labeled.

227. The protein of claim 226 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

228. (Amended) The protein of claim 227 wherein said radiolabel is  $^{131}\text{I}$ .

229. The protein of claim 213 bound to a solid support.

230. A composition comprising the protein of claim 213 and a carrier.

231. A protein produced by a method comprising:

- (a) expressing the protein of claim 213 by a cell; and
- (b) recovering the protein.

232-246. (Cancelled)

247. (Twice Amended) An isolated protein comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

248. The protein of claim 247 which comprises amino acid sequence (a).

249. The protein of claim 247 which comprises amino acid sequence (b).

250. The protein of claim 247 which comprises amino acid sequence (c).

251. The protein of claim 248 which excludes 133 amino acid residues from the amino terminus of the full length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768.

252-259. (Cancelled)

260. The protein of claim 247 wherein the protein also comprises a heterologous amino acid sequence.

261. The protein of claim 260 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

262. The protein of claim 247 wherein said protein is labeled.

263. The protein of claim 262 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

264. (Amended) The protein of claim 263 wherein said radiolabel is  $^{131}\text{I}$ .

265. The protein of claim 247 bound to a solid support.

266. A composition comprising the protein of claim 247 and a carrier.

267. A protein produced by a method comprising:

- (a) expressing the protein of claim 247 by a cell; and
- (b) recovering the protein.

268. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

(b) the amino acid sequence of a carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said carboxy-terminal deletion protein mutant excludes up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768; and

(c) the amino acid sequence of an amino- and carboxy-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino- and carboxy-terminal deletion protein mutant excludes up to 190 amino acid residues from the amino terminus and up to 11 amino acid residues from the carboxy terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768;

wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

269. The protein of claim 268 which comprises amino acid sequence (a).

270. The protein of claim 268 which comprises amino acid sequence (b).

271. The protein of claim 268 which comprises amino acid sequence (c).

272. The protein of claim 269 which excludes 190 amino acid residues from the amino terminus of the full length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768.

273. (Amended) The protein of claim 269 which excludes 71 amino acid residues from the amino terminus of the full length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768.

274-275. (Cancelled)

276. (Amended) The protein of claim 268 wherein the protein stimulates B lymphocyte proliferation.

277-279. (Cancelled)

280. (Amended) The protein of claim 268 wherein the protein stimulates B lymphocyte differentiation.

281. (Cancelled)

282. The protein of claim 268 wherein the protein also comprises a heterologous amino acid sequence.

283. The protein of claim 282 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

284. The protein of claim 268 wherein said protein is labeled.

285. The protein of claim 284 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

286. (Amended) The protein of claim 285 wherein said radiolabel is  $^{131}\text{I}$ .

287. The protein of claim 268 bound to a solid support.

288. A composition comprising the protein of claim 268 and a carrier.

289. A protein produced by a method comprising:

- (a) expressing the protein of claim 268 by a cell; and
- (b) recovering the protein.

290. (Twice Amended) An isolated protein comprising a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

291-292. (Cancelled)

293. (Amended) The protein of claim 290 wherein the protein stimulates B lymphocyte proliferation.

294-296. (Cancelled)

297. (Amended) The protein of claim 290 wherein the protein stimulates B lymphocyte differentiation.

298. (Cancelled)

299. The protein of claim 290 wherein the protein also comprises a heterologous amino acid sequence.

300. The protein of claim 299 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

301. The protein of claim 290 wherein said protein is labeled.

302. The protein of claim 301 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

303. (Amended) The protein of claim 302 wherein said radiolabel is  $^{131}\text{I}$ .

304. The protein of claim 290 bound to a solid support.

305. A composition comprising the protein of claim 290 and a carrier.

306. A protein produced by a method comprising:

- (a) expressing the protein of claim 290 by a cell; and
- (b) recovering the protein.

307. (Twice Amended) An isolated protein consisting of a first amino acid sequence that is 95% or more identical to a second amino acid sequence consisting of the amino acid sequence of an amino-terminal deletion protein mutant of the full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said amino-terminal deletion protein mutant excludes up to 133 amino acid residues from the amino terminus of said full-length protein encoded by the cDNA clone contained in ATCC Deposit Number 97768, and wherein said protein stimulates B lymphocyte proliferation, differentiation or survival.

308-309. (Cancelled)

310. (Amended) The protein of claim 307 wherein the protein stimulates B lymphocyte proliferation.

311-313. (Cancelled)

314. (Amended) The protein of claim 307 wherein the protein stimulates B lymphocyte differentiation.

315. (Cancelled)

316. The protein of claim 307 fused to a heterologous amino acid sequence.

317. The protein of claim 316 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

318. The protein of claim 307 wherein said protein is labeled.

319. The protein of claim 318 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

320. (Amended) The protein of claim 319 wherein said radiolabel is  $^{131}\text{I}$ .

321. The protein of claim 307 bound to a solid support.

322. A composition comprising the protein of claim 307 and a carrier.

323. A protein produced by a method comprising:

- (a) expressing the protein of claim 307 by a cell; and
- (b) recovering the protein.



324. (Twice Amended) An isolated protein comprising a fragment of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768, wherein said fragment can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

325-332. (Cancelled)

333. The protein of claim 324 wherein the protein also comprises a heterologous amino acid sequence.

334. The protein of claim 333 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

335. The protein of claim 324 wherein said protein is labeled.

336. The protein of claim 335 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

337. (Amended) The protein of claim 336 wherein said radiolabel is  $^{131}\text{I}$ .

338. The protein of claim 324 bound to a solid support.

339. A composition comprising the protein of claim 324 and a carrier.

340. A protein produced by a method comprising:

- (a) expressing the protein of claim 324 by a cell; and
- (b) recovering the protein.

341. (Twice Amended) An isolated protein comprising an amino acid sequence of at least 30 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768 wherein said protein can be used to generate or select for an antibody that specifically binds the polypeptide of SEQ ID NO:2.

342. (Cancelled)

343. (Amended) The protein of claim 341 which comprises an amino acid sequence of at least 50 contiguous amino acid residues of the polypeptide encoded by the cDNA clone contained in ATCC Deposit Number 97768.

344-351. (Cancelled)

352. The protein of claim 341 wherein the protein also comprises a heterologous amino acid sequence.

353. The protein of claim 352 wherein the heterologous amino acid sequence is the amino acid sequence of an immunoglobulin Fc domain.

354. The protein of claim 341 wherein said protein is labeled.

355. The protein of claim 354 wherein said label is a radiolabel selected from the group consisting of:

- (a)  $^{131}\text{I}$ ;
- (b)  $^{125}\text{I}$ ;
- (c)  $^{121}\text{I}$ ;
- (d)  $^{112}\text{In}$ ; and
- (e)  $^{99\text{m}}\text{Tc}$ .

356. (Amended) The protein of claim 355 wherein said radiolabel is  $^{131}\text{I}$ .

357. The protein of claim 341 bound to a solid support.

358. A composition comprising the protein of claim 341 and a carrier.
359. A protein produced by a method comprising:
- (a) expressing the protein of claim 341 by a cell; and
  - (b) recovering the protein.
- 360-361. (Cancelled)
362. (Amended) The protein of claim 39 wherein the protein stimulates B lymphocyte proliferation.
- 363-365. (Cancelled)
366. (Amended) The protein of claim 39 wherein the protein stimulates B lymphocyte differentiation.
- 367-369. (Cancelled)
370. (Amended) The protein of claim 39 wherein the protein stimulates B lymphocyte survival.
- 371-373. (Cancelled)
374. (Amended) The protein of claim 124 wherein the protein B lymphocyte survival.
- 375-377. (Cancelled)
378. (Amended) The protein of claim 78 wherein the protein stimulates B lymphocyte survival.
- 379-381. (Cancelled)

382. (Amended) The protein of claim 142 wherein the protein stimulates B lymphocyte survival.

383-385. (Cancelled)

386. (Amended) The protein of claim 160 wherein the protein stimulates B lymphocyte survival.

387-389. (Cancelled)

390. (Amended) The protein of claim 178 wherein the protein stimulates B lymphocyte survival.

391-405. (Cancelled)

406. (Amended) The protein of claim 268 wherein the protein stimulates B lymphocyte survival.

407-409. (Cancelled)

410. (Amended) The protein of claim 290 wherein the protein stimulates B lymphocyte survival.

411-413. (Cancelled)

414. (Amended) The protein of claim 307 wherein the protein stimulates B lymphocyte survival.

415-423. (Cancelled)

424. A Neutrokine-alpha multimer comprising the protein of claim 124.

425. A Neutrokine-alpha multimer comprising the protein of claim 142.

- 426. A Neutrokin- $\alpha$  multimer comprising the protein of claim 160.
- 427. A Neutrokin- $\alpha$  multimer comprising the protein of claim 178.
- 428. A Neutrokin- $\alpha$  multimer comprising the protein of claim 290.
- 429. A Neutrokin- $\alpha$  multimer comprising the protein of claim 307.
- 430. (New) The protein of claim 213 wherein the protein also comprises a heterologous amino acid sequence.